GARDEN AND FOREST.

PUBLISHED WEEKLY BY

THE GARDEN AND FOREST PUBLISHING CO.

OFFICE: TRIBUNE BUILDING, NEW YORK.

Conducted by . . . . . Professor C. S. SARGENT.

ENTERED AS SECOND-CLASS MATTER AT THE POST-OFFICE AT NEW YORK, N. Y.

NEW YORK, WEDNESDAY, NOVEMBER 25, 1896.

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Unnatural Colors in Foliage.

A CORRESPONDENT writes us that he was never so impressed with the beauties of our autumn foliage as he has been during the present year, and it occurs to him that if masses of gold and crimson leaves are beautiful in autumn they must be quite as beautiful at any other season. He adds, that in view of what nature can do and what nature actually does, our objection to trees with vivid foliage seems like an affectation of severe taste. To this it may be replied that we have no objection to Negundos with pale leaves, or to Elders with yellow ones, or to Prunus Pissardi with its so-called purple foliage, if such trees are kept in their proper place. Nature is a good guide in this as in other matters, and we do not see forest borders in which a large portion of the trees have streaked or spotted leaves or deep wine-colored ones like the Copper Beech. This does not mean that our woods and shrubberies are a monotone of vapid green. From the dark green of the Spruces and Pines to the light green of some of the Willows, the Lead-plant and the Buffalo-berries there is range of color enough to give an almost infinite variety, and yet there is nothing like what is called "striking color-effects" by some park-makers; nothing like the large masses of Prunus Pissardi which we sometimes see in private grounds about American villas, or nothing like the patches of pallor on the landscape that is so often produced in European parks by masses of white-leaved Negundos. Any one with a sense of appropriateness can feel the difference between a natural landscape which catches its tone, and, indeed, its highest charm, from the gray old Olive-trees on every hand, and an artificial park made up of sports such as nurserymen delight to call Atropurpurea and Aureo-marginata.

Of course, when we speak of a natural landscape as distinct from one in which the color-effects are in a sense artificial, we remember that nature is responsible for all these strong colors. Indeed, our correspondent's argument is based on the fact that at one season of the year our woods glow with tints that cannot be matched in splendor by the odd colors of sports which have been preserved and propagated by gardeners. He might have added that our trees in early spring are almost as striking for their colors as they are in autumn. It is true, they range through a different scale, but the delicate pinks, soft grays and yellows of the opening year are quite as distinct and quite as beautiful as the crimson and gold of its close. But it must be remembered that in spring as well as in autumn these effects vary with every day and almost with every hour. There is that constant change which is the very life of beauty in the landscape. We do not object to a pattern-bed, for example, when the colors are harmoniously blended, because it is bright and striking, nor yet because it is formal, but primarily because it is invariable, and, therefore, in time becomes wearisome to the eye. A mass of scarlet Alternanthera and yellow Coleus on a lawn may have the same colors as the autumn forest leaves, but it glitters there day after day, from morning till night, in rigid sameness, without growth or development or change, the one stationary spot in all the picture, while all about it is constant transformation. Again, oddly-colored trees, especially if obtrusively planted, catch the eye at once and invite attention to themselves instead of mingling in with the general effect in the landscape. All summer long they stand to distract the mind from the beauty of the scenery with which they do not harmonize, and grow more and more tiresome with their monotonous appeal for special notice. A great part of the beauty of the foliage of trees in early spring is due to its evanescence, and a forest-covered hillside, which is glorious in the sunshine of an October day would become wearisome rather than impressive if it glowed with the same colors all summer through.

There ought to be no need of repeating that we never object to bright colors as such in the planting of parks or public grounds. There are few people who are not attracted by a mass of Rhododendrons in bloom, and certainly nothing can be brighter, but the flowers fade and fall before they become a weariness. In spring, when our wood borders are white with Dogwood or pink with the blossoms of the Judas-tree, they have a special charm which delights every beholder. But this is the beauty of a day. The planting in parks of shrubs which are covered with abundant flowers, like Japan Quinces and Forsythias and Spiræas, is only to be commended. But it must be observed that in every case the flowers vanish so quickly that we have a feeling of sadness at losing them, and this makes their reappearance another year a delight for which we long. If they stared at us all summer long we would feel grateful to the frost which came to kill them. True, there are some shrubs and plants which flower all summer through, and delightful ones they are. On a good plant of Clematis crispa, for example, we can find some of its beautiful bell-shaped flowers every morning, but there are only a few of them, and they are never in sufficient abundance to make a conspicuous display. Clematis paniculata, on the other hand, which flowers but once, delights us with the abundance of its bloom, which quite hides the foliage and then disappears and leaves behind another form of beauty.

The sum of the whole matter is that the great floral displays which we appreciate are transitory, and we naturally provide for one to follow the other, so that no season will lack its special beauty of color. There are times when rich and striking color appeals to every eye, but we do not think that good taste will commend the perpetuation of every freak of nature or the multiplication of oddities of form or color. These have no real place in the quiet harmonies of the landscapes of our temperate climate. If they are used at all they should be introduced very cautiously to emphasize some point, and not in such abundance that they will make war upon the general landscape-effect of this region. Bright-hued and transitory flowers we have in abundance, but plants with variegated and highly colored leaves are very rare in our woods and fields. Therefore, not only to avoid sameness, but to preserve the essential quality of

our landscape, we ought to follow the broad principles, at least, which Nature plainly lays down.

Judge Bellinger, in the United States Circuit Court at Portland, Oregon, has recently delivered an opinion in the case of the United States against the Tygh Valley Land and Live-stock Company which is of the utmost importance. The suit was brought by the United States to restrain the defendant from trespassing on the Cascade Forest Reserve by driving and pasturing sheep thereon. The effect of the decision is to declare the right of the Government to protect the forest reserves by civil process, a right which the sheep-men of Oregon have always denied. It has been argued that an implied license to pasture on the forest reserves had grown out of the custom which has existed from the beginning of the Government, by which the public lands have been used as pastures, especially those in which the native grasses are adapted to the growth and fattening of domestic animals. Judge Bellinger has ruled, however, that there is a clear distinction between public lands and lands that have been severed from the public domain and reserved from sale or other disposition under general laws, and that the reservation of these lands is their appropriation to a special public use, and is, therefore, a disposal of them so far as the public domain is concerned. "This appropriation," he declared, "is for the promotion of the public good. It is claimed for the Government that the pasturing of these lands with sheep will injuriously affect the forests of the reservation and thus tend to defeat the object for which the reservation was made. The object of the reservation is the preservation of the forests of the Cascade Range of mountains, in Oregon, and there is, therefore, no implication of a license to use the reserved lands for the destruction or injury of these forests. The Government, no less than a private party, is entitled to have its interests protected against the threatened trespass and injury."

Entomological.

Lawn and Grass Infesting Insects.—II.

PERHAPS the most common and destructive of the larvæ found in lawns are white grubs, the larvæ of several species of leaf-horned or Lamellicorn beetles. White grubs, both large and small, may be generally recognized by their plump, wrinkled body, nearly equal in diameter or a little enlarged toward the anal end, which terminates obtusely. They are more or less covered with brownish hair and partially curl up when at rest. The head is large, yellow or brown, with very large, powerful jaws and with rather long legs of a dirty yellow color. The body of the insect is whitish, or with a yellow tint, from which it derives its common name. We have throughout the eastern and central states quite a large number of species of beetles with this kind of larvæ, and among them are many that are more or less troublesome. The larva of the rosechafer, or rosebug, is one of these white grubs, and is quite frequently found in grass lands on light soil. The larvæ of many of the vinechafers are found in similar situations, while those of the June-bugs or May-beetles are, perhaps, the most common. It is very difficult to distinguish between these creatures, and practically it is not a matter of very much importance, but there is one species which is sometimes the chief, if not the only, offender (see fig. 66), differentiated from all the

Fig. 66. The fig-eater, Allorhina nitida. *a*, the larva; *b*, the pupa; *c*, the adult or beetle; *d*, *e*, *f*, *g*, larval details, enlarged.—After Riley.

others by the fact that it is very densely clothed with quite long brown hair, and if removed from its home within the soil travels rapidly on its back, wriggling along much more actively than any of the other species found under similar circumstances. This hairy creature is the larva of Allorhina nitida, also called the fig-eater, or bumble-bee beetle, from the buzzing noise it makes during flight.

Ordinarily, when we find a white grub nearly a quarter of an inch in diameter and somewhat more than an inch in length, without any hairy clothing, we can take it for granted that it is the larva of one of the May-beetles, or species of Lachnosterna (see fig. 67). These beetles fly only at night, be-

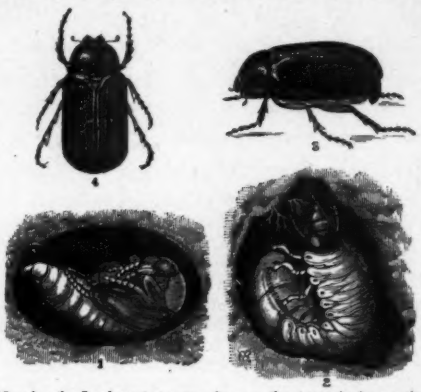

Fig. 67. May-beetle, Lachnosterna species. 1, the pupa in its earthen cell; 2, a larva feeding on grass-roots; 3, 4, adult or beetle from side and above.—After Riley.

ginning just as soon as it becomes dark, and continuing until midnight or, if it is sultry, until long after that period. They are strongly attracted to lights, and we may often notice them about electric-lamps, or even beating against common gas-lights. In this stage they feed upon the leaves of various trees, and sometimes do quite considerable injury to shade-trees. Occasionally, where a few fruit-trees are grown in a garden more or less surrounded by lawns, they gnaw the stalks of the forming fruit, or even of the blossoms, and so do much damage. Before morning, in every case, they return to earth, burrowing a short distance below the surface in some cases, or crawling deep into grass-tufts, but, at all events, concealing themselves completely. The eggs are laid in the ground itself among the roots of the grass, and the larvæ when they hatch at once begin feeding. They live for two or three years in this stage, growing very slowly, and, on the whole, not eating very ravenously. It is only when they become very abundant that serious injury results, or when, after Grass, Strawberries or other plants are set, so that a comparatively few plants replace a great number. An old sod is, however, very apt to become infested by successive broods, and much damage may then be done, the roots being in some cases eaten off clean, and the grass becoming brown on the surface and eventually dying. Toward the end of the third summer the larvæ go down a little deeper—say, from six to eight inches—excavate for themselves a clean earthen cell, change to a pupa, and shortly thereafter into an adult beetle, which does not emerge, however, until May or June following. The larvæ of the fig-eater grow more rapidly, and are often much more abundant than those of the May-beetles, and their work beneath the carpet of sod is sometimes so rapid and so complete that the whole can be rolled up like a rug, every fibre of the roots attaching it to the soil having been destroyed.

Remedial Measures.

It is always a matter of interest to determine what is causing the injury that we observe; but, after all, the important question is, what can we do to check it? Where land is kept in grass for a year or two only, in the ordinary rotation practiced on the farm, the insects rarely become very abundant, unless the rotation is a bad one—that is, when grass crops follow each other for too long a time. On lawns, where the object is to keep the grass as long a time as possible, the difficulties are enhanced, and where white grubs are abundant, more or less injury will always be caused. Indeed, all the insects infesting grass lawns will have a tendency to multiply, and entire exemption from injury can hardly be expected.

One of the simplest measures is frequent cutting and rolling. This has a tendency to drive off the Lepidopterous insects that may be among the grass, and to prevent the laying of eggs. Many of the click-beetles are also destroyed by this process and more are driven off, so that even as against these some benefit may be had. The May-beetles, flying only

at night and remaining underground during the day, are less likely to be disturbed, and the measure suggested is of least benefit as against these.

The grass should be always kept well fed; but so far as possible, after the ground has once been put into good condition and a good lawn has been obtained, use no barnyard manure. All insects do very much better in a soil containing a great quantity of vegetable matter, and are least at home where mineral fertilizers are constantly used. Lawns should be fed almost entirely with mineral fertilizers, nitrate of soda being used to furnish the necessary nitrogen, and kainit or muriate to furnish the potash. None of the phosphates in ordinary use have insecticide qualities, so it does not much matter in what form this is put on. It is also a good plan when using these fertilizers to apply them quite heavily and to make the application during or just before a rain, that they may be readily dissolved and washed into the soil. No insects like salt, and kainit contains a considerable amount of both chloride of sodium and chloride of magnesium. A great many of the young insects are at once killed by this application, and the others will not feel inclined to feed much so long as any trace of it remains about them.

Where land is badly infested, especially if by white grubs, it is a very good plan to plow or dig up the sod, and if chickens are available, turn them in for two or three days and allow them to pick up everything in the way of insect life that they can find. Chickens are very fond of white grubs, and will dispose of a very great number of them if given an opportunity. If the ground be turned over more than once, so as to expose as many as possible of the insects, the work will be the more thorough.

It has been found practical to use kerosene on a small scale on lawns, and with very good effect as against all underground insects. Kerosene is, of course, a contact poison and exceedingly effective wherever it can be brought in touch with creatures in which the spiracles, or breathing-pores, are not too well protected. An emulsion should be prepared in the ordinary way, that is, according to the following formula: Hard soap, shaved fine, half-pound; soft water, one gallon; kerosene, two gallons. Dissolve the soap in the boiling water, warm the kerosene slightly, then pour the boiling hot soap-suds into the kerosene and churn with a small force-pump until the oil and suds are thoroughly mixed and form a pure white, soft butter. Where the mixture is very hot and the churning is active, five minutes will serve to prepare a perfect emulsion. The colder the mixture and the less thorough the churning the longer the time required to procure the butter. This emulsion may be readily diluted with water, and using from ten to fifteen parts of water to one part of the emulsion makes a sufficiently active mixture to apply liberally to infested grass lawns. It can be put on with an ordinary sprinkling pot, and should be applied so as to thoroughly moisten the soil. If it does not rain within twenty-four hours use a hose, if one is available, to wash the kerosene deep into the soil, and a considerable amount of water may be applied. This will carry the oil down, and it will kill whatever it touches there, without hurting the roots of the grass or other plants. The addition of water should be continued for at least three days in succession, unless it rains sufficiently to wet from two to three inches below the surface, or to the bottom of the grass roots. Of course, this material is useful only on lawns, or where the amount of land to be protected is limited. It would be altogether too expensive to use in ordinary field practice, but is very effective where it is used to protect only a small area. An application of this kind was made on the Capitol grounds at Washington in 1888, under the direction of the then entomologist, Dr. C. V. Riley, and it proved a decided success. It has been used by others on a smaller scale and always with benefit. The application may be made at any time when the presence of destructive insects working on the sod is determined. If land is at this time (November) badly infested, the emulsion can be applied diluted ten times, and in considerable quantity, so as to make certain of killing all the grubs at whatever depth they may be. In spring the land can be reseeded, and will then be free from insects for a time at least.

New Jersey Experiment Station, New Brunswick. *J. B. Smith.*

Foreign Correspondence.

London Letter.

CAMOENSIA MAXIMA.—This plant is now flowering for the first time in a stove at Kew, where it was planted about ten years ago in a raised border beneath which there are several hot-water pipes, its shoots being trained close to the roof glass which faces south. Here it has grown rampantly, and if unrestricted would long ago have covered a very large area with its stems, which are produced freely all over the bed from the thick woody roots. The flowers are borne in a terminal erect raceme (not drooping, as hitherto believed), and there are eight buds in each raceme, at first covered with a rusty brown tomentum. The expanded flowers have a greenish tomatose, tubular, five-lobed calyx over three inches long, and white petals six inches long, the largest, or vexillum, being four inches wide, the others much narrower; the margins are elegantly crisped and colored pale gold. The odor of the flowers is powerful and suggestive of vanillas. This plant was introduced to Kew in 1873, when Mr. H. Monteiro sent seeds of it from Angola, where it was discovered by Dr. Welwitsch and described and figured by Bentham in vol. xxv. of the *Transactions of the Linnæan Society*. I am told that it is now flowering also in two other gardens in England. It flowered in Ceylon two years ago.

VANDA SANDERIANA.—The largest and most floriferous specimen of this grand Vanda ever seen in Europe was exhibited at the last meeting of the Royal Horticultural Society by Mr. J. G. Fowler, of South Woodford, in Essex. It was nearly four feet high and three feet through, and consisted of eight strong, well-leaved growths, upon which were eleven flower-spikes, bearing an aggregate of one hundred and twenty expanded flowers of exceptionally large size and rich in colors; the largest spike bore fifteen flowers. Such a specimen of an Orchid, which at best is a bad grower and one of the most difficult of all to import, created quite a sensation, and was awarded the gold medal of the society by acclamation. It was imported from Mindanao by Messrs. H. Low & Co. about a year ago, who attribute its exceptional growth here to the care taken of it by their collector, Mr. Boxall, who brought it over in his own cabin and tended it carefully all the way. Under ordinary care this Vanda suffers severely during transport, and is generally found difficult to establish.

CYCNOCHES CHLOROCHILON is grown exceptionally well in the Edinburgh Botanic Garden, where I lately saw a plant which had matured pseudo-bulbs two feet long, and upon one of them there had been two racemes, one with five, the other with seven, flowers. Altogether, the plant bore thirty-five flowers, all open at once, and the same pseudo-bulbs were again pushing out racemes from the nodes below where the others were developed. This plant is a male, but in the same house with it was a female, which had borne racemes of only two flowers, differing from the male flowers in being larger, thicker, with a much shorter column. These plants were grown in a hot-house along with Vandas, etc., and were suspended in baskets near the roof glass. This species has done well also at Kew this year, where it is now in flower. The large creamy-looking flowers are a great attraction to visitors, who are most delighted when they see an Orchid-flower which suggests some animal, and the resemblance of this Cycnoches to a swan is quite striking.

CATTLEYA APOLLO.—This is a beautiful hybrid of Veitchian origin, its parents being Cattleya Mossiæ and C. Aclandiæ. It is quite distinct from all other hybrids, and was awarded a first-class certificate by the Royal Horticultural Society a fortnight ago. It is dwarf in habit and the flowers resemble those of C. Aclandiæ in form and substance, while in color they are like those of C. Mossiæ. The sepals and petals are about three inches long, rose-colored, shaded and faintly blotched with purple; the lip is broad, somewhat flattened, and is colored crimson-purple in front, yellow at the base and a pleasing shade of rose on the side lobes.

CATTLEYA TRIUMPH.—This hybrid between Cattleya Lawrenciana and C. speciosissima, and raised by Mr. C. J. Ingram, was also awarded a first-class certificate. It may be called an enlarged C. Lawrenciana, the flowers resembling some forms of that species in color, but being about

half as large again; they are rosy lilac, with a purple blotch on the front lobe of the lip.

Aglaonema Curtisii.—This is another addition to the garden representatives of this genus which is related to the Alocasias and appears to have its headquarters in the Malay Archipelago. Aglaonema Curtisii was exhibited by Messrs. J. Veitch & Sons at a recent meeting of the Royal Horticultural Society and was awarded a first-class certificate. It forms a tuft about two feet high, with erect fleshy oblong leaves a foot long and five inches wide, colored deep green, blotched and streaked with a pleasing gray-white. It resembles all the other species in its preference for hot moist treatment and a light rich soil. We find that all these ornamental-leaved aroids are happiest when the soil for them is renewed annually and the mixture used is of such a nature as to afford them plenty of nourishment and to permit of copious waterings almost daily throughout the summer months. In Continental gardens, where these plants are favorites, they are grown in large numbers together in wide pans or shallow pots.

Pteris Childsii.—This is one more of the numerous seedling sports of Pteris serrulata, perhaps the most diversified as well as the most popular of exotic Ferns. It was shown as a new hybrid or sport by Mr. Childs, of New Eltham, and received a first-class certificate from the Royal Horticultural Society. It is of robust compact habit, the fronds graceful and the pinnæ broad, these being again divided along the margins and crested at the tips in the most extraordinary yet elegant plumose fashion. Apparently it is barren, the exhibitor having not yet seen a frond of it bearing sori. Fern experts, particularly growers of market plants, looked upon it as a most valuable addition to quick-growing decorative Ferns. There are already dozens of well-known named varieties of P. serrulata, every one of which would take front rank with the best of easily grown useful Ferns.

Lobelia Gerardi.—This is a garden hybrid of Continental origin, its parents being Lobelia syphilitica and L. cardinalis. It was first brought into notice in 1893 in the *Revue Horticole*, p. 462, and it has since attracted considerable attention on account of its free growth under ordinary cultivation, and the attractions of its erect spikes of rich blue flowers. It resembles L. syphilitica in habit, forming in a few months a mass of erect leafy stems, bearing spikes from six inches to a foot long crowded with flowers. It has not yet received much attention in this country, but I saw a batch of it in flower at Chiswick in August, and at the last meeting of the Royal Horticultural Society some plants of it were shown by Sir Trevor Lawrence and received an award of merit. It is a distinct and useful addition to the tall perennial Lobelias which are nowhere more at home than when planted in wet ground near the margin of lakes or streams.

London. *W. Watson.*

Plant Notes.

Notes from the Santa Monica Forestry Station.

Eucalyptus corymbosa.—Two specimens of this Eucalypt, the Bloodwood-tree of Australia, are now in bloom here for the first time. The better one is a handsome, symmetrical tree thirty feet in height, with a spread of fourteen feet, and a trunk diameter (one foot from ground) of eight inches, representing a growth of eight years from the seed. The leaves are ovate-lanceolate, slightly sickle-shaped, glabrous, a rich dark green in color, paler beneath, with a conspicuous white midrib. They resemble somewhat the leaves of the Sugar Gum, E. corynocalyx, but are larger, more symmetrically shaped and differently and more finely veined. The new leaves are light yellowish green, with dark green veining, and very attractive; the leaf-stalks and young branchlets are dull crimson. The few-flowered umbels of conspicuous white blossoms are borne in large, showy, rather loose, corymbose panicles on the ends of the branches, giving the tree a most ornate appearance. The outer layer of the bark is ashy gray, and is deciduous in small, thin flakes, exposing the under layer, which is red-brown, smooth and finely fissured. As an ornamental tree E. corymbosa ranks with the best of the Eucalypti. Economically it is of especial value in southern California for bee pasturage at this season of the year, when bee-feed is scarce. Its timber, however, according to Australian authority, is not of much value, owing to the amount of kino it contains, whence the popular name of Bloodwood.

Parkinsonia aculeata.—November finds a few flowers and not a few buds still lingering on this strikingly attractive plant, after a blooming season lasting all through the long Californian summer. Ours is a spreading, shrubby specimen, about five feet in height. Its curious, bright green, bipinnate leaves, with three pairs of long, needle-like, winged pinnæ from six to eighteen inches in length, and numerous tiny, oblanceolate leaflets, give it a very graceful, airy appearance. This effect is heightened by the slender, loose racemes of bright yellow, stellate flowers on slight, but rigid, yellowish green peduncles. Botanically remarkable are the short, thick petioles, each ending in a stout, sharp spine, and with two smaller, stipular spines at its base. When the pinnæ have fallen away, the petiole persists as a formidable spine, constituting, with the stipular spines, a horrent combination in striking contrast with the airy elegance of the general effect of this charming plant.

Hakea laurina.—On the high bluff overlooking the station to the west is a fine, bushy specimen of this most ornamental tree, at present in full bloom. The peculiar, deep red and white, globular flower-heads, borne in lavish profusion all over the tree, and well set off by the dull-green foliage, produce a striking impression. This tree is succeeding well on the adobe soil of the mesa lands. Planted some ten years ago, it is now ten feet in height, with a compact, bushy crown eight feet in diameter. It has bloomed and borne seed for several years.

Santa Monica, Calif. *John H. Barber.*

New or Little-known Plants.

Nymphæa stellata, var. Eastoniensis.

Nymphæa stellata, often catalogued as N. cœrulea, is one of the best of the Water-lilies, bearing a clear, light-blue flower, delicately scented, and from six to eight inches across. The flower which we figure on page 475 is a seedling of this plant, raised in the gardens of Oakes Ames, Esq., and named Eastoniensis. It was shown at an exhibition of the Massachusetts Horticultural Society in September last, where it received favorable mention. The color of the flower is a steel-blue, and it differs from those of the type in that it does not show so distinctly the stellate form, the petals being broader and more rounded at the end. The flower is somewhat larger than in the true N. stellata; the leaves are longer, oval in shape and more deeply toothed. The new plant grows rather more vigorously than the type and has longer and thicker flower stems. The seeds of N. stellata were sown in December, 1895, and the seedlings were potted up late in January, or as soon as they could be handled and grown in a tank where the water was kept at a temperature of about sixty-five degrees, Fahrenheit. About the middle of June the seedlings were planted in a shallow pond with a bottom composed of good turfy loam, enriched with some bone-meal and well-rotted cow-manure. All the plants grew luxuriantly, and they were generally of the regulation form, excepting two, one of them being this variety, Eastoniensis.

Cultural Department.

A Fungous Disease of the Apple.

It is not uncommon in Delaware to see apples dotted with little black spots not unlike fly-specks in general appearance. The popular name given by fruit growers to this condition is "Blackbirds," though the reasons for this

appellation are difficult to determine. A more appropriate name suggested by Professor Chester would be the Fly-speck fungus. All varieties that I have examined are affected to a greater or less degree, and some, like the Jackson, are often so seriously peppered with these little specks as to injure their market value. The spots, or "fly-specks," are generally grouped together, forming circles or irregular patches from a quarter to an inch or more in diameter. The skin of the apple around these aggregations of spots becomes clouded or fogged, and when the trouble is serious the foggy areas coalesce, giving the apple a dark, sooty appearance. This blemish on an otherwise perfect apple cannot be ascribed to "Blackbirds" or "Flies," but is due to an obscure fungus called Leptothyrium pomi (Mont. et Fr.), Sacc. The disease has never been serious enough to be of economic importance, and is not even mentioned with other fungi attacking the apple. The effects of the fungus do not extend below the skin, being confined entirely to the surface. It does not cause rotting, but the tissues around the spots shrink, so that in the worst cases the apple presents a shriveled appearance. The most serious objection to the fungus lies in the sooty appearance it causes on the fruit, which in many instances is so marked as to injure the market value of the apple.

It may be that this will prove another disease which the orchardist now has to combat, and if so, its superficial character would make it easy to reach with fungicides. Botanically the fungus belongs in the Leptostromaceæ, and is described by Saccardo in his *Sylloge Fungorum*. It was first noticed by Montagne and Fries in the *Ann. des Sci.*, 2, 1, p. 347, and called Labrella Pomi.

Experiment Station, Newark, Del. *G. Harold Powell.*

Fig. 68.—Nymphæa stellata, var. Eastoniensis.—See page 474.

The Protection of Strawberries.

IT is always advisable to give Strawberry beds protection in winter, but it should be remembered that this practice is not intended to keep the plants from severe cold, but to secure an even temperature which will prevent alternate thawing and freezing and the heaving of the plants. If suitable material is used, it can be left on the beds until the bearing season to keep the berries clean and help to prevent the evaporation of moisture from the soil. The best material to use for this purpose depends upon its cost and convenience in different places. Coarse stable-manure is liable to ferment, and if it does not

do this it is too warm and will smother the plants if put on thickly, so that they come out in the spring blanched and sickly. Straw of oats, wheat or rye has good points and is nearly always available, but it is objectionable because it contains seeds of weeds, and the grain itself is a weed in a Strawberry bed. Where good marsh hay can be found which contains no foul seed, it makes an admirable covering, for it is not easily blown off and can be allowed to remain as a safeguard against early frosts and as a summer mulch. Dry leaves are also good and they are almost always to be had. They should be scattered thinly over the bed and then held in place by a few corn stalks or pea brush. They, too, can remain during the summer, and when they decay will add fertility to the soil. In Maine the boughs of Spruce and Pine are sometimes used. They hold the snow in place, are sufficiently thick to be a non-conductor, and yet are not so dense as to prevent the circulation of air. In the southern mountain regions where there are Pine forests, the needles furnish an ideal material. They are clean and easy to apply, they lie so close to the ground that the wind does not move them, and yet are sufficiently open to give good ventilation, and even if they chance to be heaped up in places by the wind more thickly than needed they do little harm. Besides this, their resinous quality is said to repel insects. Indeed, so many things are available for protection that any gardener, unless he totally lacks ingenuity, can find something to serve his purpose. The time to apply the cover is after the ground has frozen hard, so that a cart or wheelbarrow will not cut into the surface.

Montclair, N. J. *S. C.*

Chrysanthemums.

RECENTLY, a committee from the Massachusetts Horticultural Society paid a visit to the greenhouse belonging to William Nicholson, a commercial grower, of Framingham, Massachusetts, to inspect his Chrysanthemums. Space is valuable, and not an inch of room under glass is wasted here. Everything is creditably clean. Like all progressive florists, the owner knows the value of order and cleanliness. We did not look for exhibition blooms. The trade does not require such. Yet we found blooms which would grace any exhibition board, although double the number is planted in the space required for such blooms. Smaller flowers—that is, smaller than they ruled some years ago—are the rule; but, unfortunately, the same stiff character prevails. The florist must grow flowers which pack and carry well. The retailer requires, in addition to these qualities, that they keep and ship well, and are easily handled. It will be some time yet before we shall see the artistic types, without which grace, beauty and harmony of arrangement cannot be secured. Even in Horticultural Hall, Boston, where the greatest latitude is allowed, the monotonously rigid arrangement prevails.

Decided colors are the rule. Mrs Perrin is declared to be the best true pink-colored variety yet introduced. Ada Spaulding, with pink and yellow shadings—a finely built, incurved bloom—is yet a favorite. Stiffness also is its prevailing good quality. W. H. Lincoln, a remarkably good yellow bloom of the reflexed Japanese type, though discarded by many growers for lack of size, is considered one of the most profitable. It certainly is a satisfactory one to buy. Few yellow blooms last as long when cut. S. T. Murdock is a reflexed pink, and one of the best late varieties of its color. There is something peculiar about the appearance of the blooms under bright light. The upper surface of the florets glistens and refracts sunlight. Under these conditions the blooms appear faded, but when the sun is down they are fairly luminous. For parlor decoration it is the ideal. John Shrimpton, a maroon of recent introduction, fills a gap among varieties of its color. Up to the time of its introduction, four years ago, the only really good dark-colored variety was Cullingfordi. We had had others, notably G. W. Childs, which was superb where it succeeded. It is now discarded as a cut-flower variety on account of the unexplainable habit which is best termed "burning," though this occurs as well in shade as sunshine. Mr. Brydon once said of another recent introduction, William Seward, of nearly the same shade, that it would burn in a cellar. John Shrimpton, when well grown, produces a bloom almost as large as G. W. Childs, and does not "burn." Moreover, it is dwarf and can be grown on side benches with from three to four feet head-room. Minnie Wanamaker was introduced less than ten years ago, but is now rated as an old variety. It holds favor from the fact that it is one of the best late white-flowered kinds that ship well. It may be cut before fully matured, and has some value on that account. Mrs. Henry Robinson is unsurpassed in elegance of form and in every other way to all true lovers of the beautiful. The florist, however, wants a stiff stem. All other qualities prevailing, weakness in this particular affects its value in the market, and this it lacks. In our display at Wellesley the blooms are allowed to bend and turn with freedom so long as they do not obstruct the path. Here Mrs. Robinson is seen becomingly. Helen Bloodgood is a fit companion for the last-named, and, like it, its deep, perfect blooms of glistening rose-pink lack a rigid stem. Cullingfordi is yet indispensable, for, while John Shrimpton comes near to it in color tones, it is not quite equal.

Wellesley, Mass. *T. D. Hatfield.*

Broad-leaved Evergreens.

OUR experience with broad-leaved evergreens has not been very satisfactory. Aucubas of different kinds, both the plain green and the spotted-leaved varieties, live out-of-doors with us, surviving the coldest winters, but they grow so slowly that they cannot be counted on to make large bushes. Their tops are often killed by severe frost, and thus they are apt to lose in winter all that they gain by a summer's growth. Also our summers seem to be too dry for them. Mahonias do better. They increase slowly, and do not winter-kill so badly, though the foliage is usually damaged more or less by the cold. The handsomest of them here is M. Japonica, but none of them flourish with us as they do in Washington. When I saw, some years ago, how these beautiful shrubs were used in decorating the public grounds in Washington I bought numbers of broad-leaved evergreens for our home grounds. Very few of them have made satisfactory growth. The most beautiful little tree of this class at Rose Brake is Osmanthus ilicifolium, which seems perfectly hardy without winter protection, and grows faster than our native Holly, which it resembles in foliage.

A group of Evonymuses of different kinds, both deciduous and evergreen, is now exceedingly interesting. Of these the finest was obtained some years ago from John Saul under the name of Evonymus Sieboldii. This has far outstripped the commoner Japanese evergreen variety in growth, and is now a round, bushy shrub, four feet in height, with broad leaves, lighter in color than those of E. Japonicus. Its foliage is subevergreen in character and usually remains upon the branches until Christmas in this climate. The fruit, as I once saw it in Washington, is a brilliant red. My own specimen has not fruited as yet. Its chief attraction up to this time has been its foliage and its flowers. The blossoms of most Evonymuses are small and insignificant, and they come at a time when so many showy plants are in bloom that they pass unnoticed. This is not the case with E. Sieboldii. Late in August of this year, when scarcely any other shrubs were blooming, it was covered with conspicuous cream-colored flowers larger than those of any other Evonymus known to me, and so abundantly produced that the little plant presented a most beautiful appearance and made one of the chief attractions of the garden at that time. The flowers are of great duration, and even as late as the middle of October fresh buds were opening every day. The failure to set fruit was possibly due to the very dry weather which endured through the months of August, September and October. I can heartily recommend this little shrub to all lovers of beautiful plants. It seems hardier than the common Japanese evergreen Evonymus, whose foliage turns yellow after severe cold weather, although it persists upon the branches until pushed off by the new growth in spring. The tops of the branches also winter-kill, which does not seem to be the case with E. Sieboldii. Farther south this variety is said to be evergreen.

Rose Brake, W. Va. *Danske Dandridge.*

Correspondence.

Notes from the Arnold Arboretum.

To the Editor of Garden and Forest:

Sir,—The Ilexes are fruiting with uncommon abundance this year; the yellow-fruited form is singularly beautiful just now, and is admired by every one who sees it. The Evonymuses are still beautiful, especially E. atropurpureus and the variety Coccinea of E. Europeus. There is another variety with white capsules, which make a striking contrast with the scarlet arils. Pyrus arbutifolia and P. nigra are covered with red and black fruit, making both plants as interesting at this season as they are beautiful in flower. Celastrus paniculata still holds its fruit, and if its branches were cut early they would be useful for decorative purposes, as the brilliant fruit hangs on all winter. The blue-black fruit of Memispermum

Canadense is especially large this autumn, but Berberis Thunbergii is still the brightest of our autumn-berried plants, and I can recall no other shrub of comparatively recent introduction that has given so much satisfaction at all seasons. The Bayberries are more fruitful than ever this year and the bluish-gray berries show up admirably. Rosa lucida is a mass of scarlet; the white fruits of Symphoricarpus racemosus are still in good condition, while those on S. vulgaris are just coloring red. These autumn fruits make a show that is quite as satisfactory, and, in some cases, even more so than the flowers do earlier in the season. Yesterday the Forsythias were flowering more freely than they did last spring, and quite a number of flowers could be plucked from Daphne Cneorum, Erica vagans, Lonicera Morrowii, Pyrus Japonica, Genista tinctoria and several more.

Jamaica Plain, Mass. *Jackson Dawson.*

Lemons in California.

To the Editor of GARDEN AND FOREST:

Sir,—The lemon is not often mentioned, if at all, in accounts of the early California orchards, and only within the last three years has it had any standing, either actual or prospective, as a fruit for export. An acknowledged authority on horticulture in California, in a work published only five years ago, thus summed up the situation, as it was then: "The lemon product of California is very small. The tree is less hardy than the Orange, and is otherwise more exacting in its requirements. For this reason it is probable that a much smaller area of California is adapted to the commercial production of the lemon. The fruit also has a grievous competitor in the imported Sicily fruit and the popular favoritism for it, which, like many other popular fancies, amounts to a blind prejudice. There is, however, reason for the preference for the imported fruit, when one considers only the relation of the common California seedling lemon to the Sicilian fruit, for the common California seedlings are very poor, overgrown and coarse, deficient in acid and full of bitterness, prone to decay even when fairly handled. But when the comparison is drawn between a few improved varieties, which are now quite largely produced and properly cured by a few enterprising growers, California lemons have nothing to fear from the imported fruit, except popular prejudice. Still, there is progress being continually made by the few growers who have confidence in the home product, and intelligence and diligence to properly prepare it for marketing, and they find the fruit very profitable. It now seems assured that the next few years will bring California-grown lemons into better repute and larger supply."

This quotation contains a prophecy which is now being fulfilled, and also some statement of the difficulties under which California lemon growers labored only five years ago. The growth of the orange industry was more rapid for the reason that the Washington Navel variety was seen at once to be so good an orange that its ultimate popularity in the markets of the east was a question only of time and persistence. Moreover, this orange was found to be adapted to many different sections of California. No universally accepted variety of lemon was known, and growers ten years ago were all at sea as regards varieties, soil, propagation, cultivation and methods of curing. As usual, under such circumstances, a few enthusiastic pioneers took all the risks, and demonstrated to slower and more timid men what could be done with the lemon in California. Some of these venturesome planters reaped large rewards from their foresight. One of them, Mr. G. W. Garcelon, of Riverside, for several years realized as much as from $1,200 to $1,500 an acre from his lemons. To one who did not understand the circumstances of the case this statement would appear fabulous. But at this time there were not enough lemons grown in California to supply the home demand. Very few people made even a tolerable success at curing them, and Mr. Garcelon, who did make a success and had the secret of keeping his lemons in storage until there were no others in the market, sold his product in San Francisco at $5.00 and $6 00 a box. Two hundred, or even four hundred, boxes to the acre is not an unusual yield, and it is a simple problem to figure out the resulting profits. Mr. Garcelon was supposed to possess some wonderful secret process of curing because the quality of his lemons was so much higher than that of others. He was importuned to give away or sell his secret. It is said that even the state tried to buy it, but, for a long time, he refused to sell, and continued making a brilliant success where others failed. Finally, four or five years ago, he divulged his process, the details of which were published everywhere in California. It was found to be not a method of pickling, preserving or forcing, as many had supposed, but simply a system of curing with great care and attention to handling the fruit, to temperature and to other details. This process, with some modifications by different packers, has been generally adopted, and has settled in great measure the question of curing.

The Lemon is a perennial bearer—that is, it produces several crops a year, although the largest and best crop is ready for picking between the first of December and the first of April. To get the best results lemons must be picked every month—at least ten months—of the year. This fact complicated the problem very much, as the individual grower, in most cases, did not gather enough lemons at a time for a profitable shipment and did not know how to keep them. This difficulty, with others, as will be shown later, has been overcome by experience and concerted action. The question of soils and localities was for a long time discussed without settlement. Some growers recommended a sandy loam or a sandy, gravelly soil; others a deep, rich, red soil; others a sedimentary, clayey loam. It has been found that the Lemon does well on all of these soils, but my opinion is that a sandy loam which is not too sandy is probably the best. The character of the soil may exert some influence not yet fully understood upon the curing and keeping properties of the fruit. Some growers argued that the Lemon would not do well near the coast, yet the largest Lemon orchard in the world, comprising one thousand acres, has since been planted near San Diego, only a few miles from the coast, and San Diego County has more Lemon-trees than any other in California. Others contended that the Lemon would not thrive in the hot valleys of the interior, yet it does well in San Bernardino and Riverside counties, where the summer temperature, in the shade, is sometimes a hundred and five degrees. Locations near the coast which will not produce the best oranges grow very fine lemons; but, on the other hand, in some of these localities there is some smut on the lemons, and they have to be washed, while those grown farther inland are much brighter and cleaner. The Lemon is more susceptible to frost than the Orange, a fact which must be considered wherever it is planted, but, apart from this fact, it is doubtless true that first-class lemons can be grown over a wider area in southern California than first-class oranges, and that the Lemon will do well on as great a variety of soils. Irrigation was another greatly mooted question a few years ago. Some thought that the Lemon needed much more water than the Orange; others thought it needed less. Common sense and experience have decided that no general rule can be established, but that the amount of irrigation varies with the character of the soil and the climate. Each grower must test for himself the conditions of his own soil and location. But the amount and time of irrigation, as well as the use of fertilizers, undoubtedly have great influence upon the quality of the fruit and the time of ripening. If too much water is used the fruit is overgrown and coarse. Irrigation deferred until late in summer delays the blossoming and budding, and consequently the ripening of the crop. Chemical fertilizers alone are valuable for the Lemon. All others tend to produce growth of wood rather than of fruit, a growth which is not needed or wanted, as the Lemon, in many locations, grows so fast that half of the new growth has to be cut back every year, and to force wood-growth is simply to add to this waste.

Theory and fact, which are so often opposed in fruit-growing, were diametrically opposite in the matter of propagating Lemon-trees. Theorists argued that the best lemons must necessarily come from trees grown from lemon seeds, or from cuttings taken from Lemon-trees. They saw an absurdity in budding the Lemon, which is a sour fruit, to an Orange, the most desirable quality of which is sweetness. Yet this apparent contradiction is now universally practiced in southern California, after years of discussion and experimentation. The Lemon does not come true to name from seeds, and buds which are grafted upon an Orange root produce better fruit than buds grafted upon a Lemon root. This was long a vexed question and is a good illustration of the fact that experience alone can teach what is best in the growing of fruit.

Three varieties are now accepted in California as the best, and little is heard of any others. These are the Lisbon, the Villa Franca and the Eureka. The two former are importations from Europe; the Eureka originated in California. The Lisbon is a thorny tree; the Villa Franca is thornless, and the Eureka is nearly so. The Lisbon makes the largest tree of the three and is a very prolific bearer. Its fruit is of a uniformly medium size, is strongly acid and is a good keeper. For these reasons it is a very popular variety, although the flavor of the Eureka is preferred by most people. These two are more often planted than the Villa Franca. The Eureka bears fruit every month in the year.

As soon as it was seen that the lemon would become an important commercial factor, middlemen prepared to handle the product by erecting houses especially prepared for curing and storing it. This lightens the labor of producers and is a great benefit, especially to owners of small orchards. A dozen or a thousand boxes may be taken to one of these establishments and disposed of. They are either bought outright or are packed and sold on commission for the grower. The absolutely essential thing in gathering the crop is very careful handling, as the slightest bruise on the skin of the lemon will cause it to rot. Lemons are picked according to size and not according to color—another point which had to be learned by experience—and they should be gathered in baskets as they are then less likely to be bruised than when picked into the more convenient sack. Great care is taken in assorting lemons to have them of a uniform size, and the strictly fancy lemon is considered to be one weighing from three to five ounces two to three months after picking, and measuring from two and a half to three inches from blossom to stem end, with a nearly uniform diameter crosswise from two to two and a half inches. A common method is to test them either during or after picking with a ring two and a fourth or two and a half inches in diameter, all which will not pass through the ring being rejected. The former size packs about 360 to the box, and the latter 300, these being the sizes which have always been most popular in the Sicilian lemon.

The curing and packing houses are built of cement or stone or with double walls, the space between being filled with sawdust or some similar substance, so that a uniform temperature may be maintained. Free ventilation is provided for. The lemons, after being assorted, are packed away on trays so that the different layers do not come in contact with each other. The lower the temperature and the less circulation of air the slower is the process of curing. This may, therefore, be regulated in such a way that the lemons are cured in a few weeks or are kept for several months to meet the varying conditions of supply and demand. After they are once cured they will stand a great deal of rough usage and bear transportation well. They are frequently examined while curing, and any that show the slightest indications of deterioration are discarded. A temperature of sixty degrees, with a free circulation of air, cures the fruit in about four weeks. The greatest care is taken in packing the fancy lemons for shipment.

A fair price to the producer, and one which has recently been paid, is two cents a pound, which means $1.40 a box. But this will necessarily vary. It has been as low as one and one-eighth cents. Lemon-trees are planted from twenty to twenty-five feet apart, which means as an average about one hundred trees to the acre. A conservative estimate of the yield is from 125 to 140 boxes to the acre, at six years of age, and four hundred boxes at ten years of age from the planting. A yield of five or six boxes to the tree, when in full bearing, is not unusual. Lemons would be profitable at one dollar a box to the grower. To this must be added fifty cents for picking and packing, ninety cents for freight, twenty cents for brokerage, and perhaps sixty cents for waste and other expenses. If they bring less than $3.00 a box in New York, under present conditions, somebody is doing business at a loss, and that is usually the grower.

The improved varieties of California lemons are usually conceded to be as good as those grown anywhere in the world. They are said to have more citric acid and less "rag" than many of the imported varieties. Their keeping qualities, as compared with the foreign lemon, are still disputed, and it may be that Californians still have something to learn as regards curing. But the question of a market depends principally upon the points of production and foreign competition. In 1895 more than five million dollars' worth of lemons were imported into the United States, or more than two and a half million boxes. Up to the present time not more than 50,000 boxes a year have been sent east from California, this limited quantity being, of course, in addition to the larger quantity consumed on the Pacific coast and in adjoining territory.

A careful estimate places the number of Lemon-trees now growing in California at a million and a quarter, nearly all of them being in the seven southern counties of the state. About a quarter of a million are stated to be in bearing, although only a small proportion of these are in full bearing, a fact which shows the very rapid growth of the industry during the past three years. The crop will constantly increase until, five years from now, the Lemon-trees of California should bear a crop equal to the full volume of importations from foreign countries. In all probability there will not be a satisfactory market at first for the California crop and for importations also. But the enterprise of the California fruit growers, which made a market for California oranges under equal difficulties, will doubtless finally solve this problem, and in the mean time the consumer will reap the benefits of keen competition.

Redlands, Calif. *William M. Tisdale.*

Exhibitions.

The Fall Exhibition of the Horticultural Society of Chicago.

THE annual fall exhibition of the Horticultural Society of Chicago was held November 10th to 14th in large rooms which allowed effective grouping of the plants, with ample space for their examination. The cut flowers and table exhibits occupied a room by themselves, with standard and specimen Chrysanthemums and decorative plants for ornament. The three leading exhibits of Chrysanthemums were from Nathan Smith & Sons, Adrian, Michigan; E. G. Hill & Co., Richmond, Indiana, and Vaughan, Chicago, and many vases of cut flowers were exhibited by each of these growers which showed the range and quality of cultivation. Some of the familiar names of Chrysanthemums were missed, and others were represented only by an occasional specimen, but in the main the older and newer forms were quite equally distributed. Those offered in groups of six or more, and coming most frequently into competition for awards, were largely of newer varieties. This was especially true of the white sorts; the leading kinds shown, and which took most of the premiums, were Mrs. H. Robinson, Mayflower and Niveum. Many of the yellow varieties were also comparatively new, as Major Bonnaffon, Golden Wedding and Jennie Falconer. With pink flowers it was the opposite, for the long-tested Viviand Morel led. This was partly true of the crimsons, with George W. Childs, but The Bard came into close competition. The latter, from its bright color, good habit and abundance of flowers, is finely adapted to bush or tree form, and some of the specimens were effectively trained into various forms. Mr. W. N. Rudd, of Chicago, showed several groups of plants in six-inch pots, each flower grown to a single stem, which was left so low as to stand without the supporting cane. Several ranged from ten to fifteen inches high. One group of twenty-five, the plants about twenty inches high, even in height and size of head, was arranged quincuncially on the floor with neat effect, a little orchard of Chrysanthemums. Though losing somewhat in size of flower and in foliage, these low-grown plants are useful for decoration on stands and tables in place of more evanescent cut flowers.

Two good white seedlings were offered by Nathan Smith & Sons. The one named Western King was certificated, and is a flower of good substance, similar to Mrs. H. Robinson, the head inclined to be deeper. The other, Mrs. M. A. Ryerson, was not entered for a certificate, being reserved, I suppose, for some other occasion, as it was the better of the two. The flowers were large, some terminal heads measuring thirteen inches from side to side over the top. The stems were stiff and adequate to sustain such heads. It has more regularity than the Mayflower. A card attached stated the parentage to be Snowball and Mrs. H. McK. Twombley. Both of these flowers were pure white, open sufficiently for the individual petals to show distinctly.

The competition among the growers of Carnations was keen. From three to four times the table space of last year was taken, and all but three of the twenty-two named varieties specified by the Society for premiums were represented. Forty-two named varieties were counted, and there were besides several more that were numbered, some of them distinct in color and markings, especially a lot sent for display by John H. Sievers, San Francisco, California. The forty-two varieties were distributed in color as follows: White, nine; pink, fourteen; red, eight; striped (with a white ground), four; yellow (all marked with red or crimson), seven. Most of the standard varieties were included, and were generally so well grown that the judges found it difficult in several cases to decide between the competitors, so that two and sometimes three awards were made in the same class. Of the introductions of 1896, two which obtained a first premium are worthy of mention. Jubilee has a red flower, larger and a little darker than Portia, but with the margins of the petals but slightly fimbricated, or frequently entire. Triumph is a darker pink than William Scott, and with larger blooms. Some from H. Weber & Sons, Oakland, Maryland, measured almost three inches in diameter, a dimension which is made a kind of goal by the Carnation growers. Of tested seedlings, Argyle, shown by Stollery Brothers, Argyle Park, Chicago, obtained a certificate. It is a pink, the shade deep, but very delicate, with a

blush of red as it ages. It comes nearest to Tidal Wave in color, but has a softer tinge of pink. It is likely to be popular, and has already been considerably distributed. Mrs. George M. Bradt was again certificated for Fred. Dorner & Sons, Lafayette, Indiana. It was even brighter in its crimson markings than in the flowers of this variety shown last year, and in other respects holds its own well. I was interested in comparing the changes in dimension of stem and calyx of the new and old varieties. As the blooms increase in size both of these must also enlarge. There is a steady gain in both respects, but with some loss in other ways, for the stouter stem lacks the grace of the more slender, old-fashioned garden Pink, and the calyx, increasing in diameter with but little added to its length, swells out and sometimes has a puffy appearance.

Reinberg Brothers, Chicago, and Poehlman Brothers, Morton Grove, Illinois, were the most successful cultivators of Roses, judged by their display and the awards obtained. They showed the principal market varieties, for growers of Roses are evidently chary of novelties. E. G. Hill & Co. showed the new Rose, President Carnot, a pink flower, shaded lighter than Bridesmaid or La France, but with the pink more pronounced than in Golden Gate, to which it is best likened of any that were shown; the foliage also handsome and quite distinct, unlike that of any variety which stood upon the tables. The leaflets are broad oval, of a lively green above, deeply tinged with pink beneath, and they come well up toward the flower and make a good setting for it.

Chicago, Ill. *E. J. H.*

The St. Louis Flower Show.

THE St. Louis exhibition, held November 11th to 15th, was inferior in general effect to that of last year, largely because all the exhibits were on one floor and on nearly the same level. The satisfying perspectives that were the feature of last year's show were missed, and the view from the gallery was less satisfactory. There was, however, a distinct advance in the number and quality of Chrysanthemum plants. This is true of single-stem, pot and standard plants. Queen, white and Viviand Morel, pink, led in their colors in the single-stem class, A. Meyer, St. Louis, taking first premium for the best twenty-five of each. The St. Clair Floral Company, Belleville, Illinois, took first premium for yellow in the same class with twenty-five flowers of their 1895 seedling, St. Clair, which was not considered promising last year because of its weak color and doubtful shipping qualities. As shown this year the flowers seem firmer, but they have an undecided tint. Some excellent single-stem plants of Harry Sunderbruch were also shown.

In pot plants, Ivory and Channing, white, Golden Wedding and Major Bonnaffon, yellow, Mrs. Hicks Arnold, deep yellow, Viviand Morel, pink, George W. Childs and The Bard, crimson, were the leading varieties. A very good plant of Hicks Arnold, with about 145 open flowers, was one of the best in the exhibition and won a blue ribbon for Mr. Vaughan, Chicago. Some of the best standards also came from Vaughan. Among them, Mrs. Governor Fifer, white, and Iora, an attractive light pink, with petals tubular their entire length, won first premiums in their class and color. Iora, a loose artistic flower, bore shipping better than some of the more compact flowers, and looked fresh and pleasing to the close of the exhibition.

In cut Chrysanthemums, white and yellow flowers outnumbered other colors, as usual. Queen predominated among whites, but good flowers of Niveum, Ivory, Minnie Wanamaker, Mrs. Eagan, Mrs. H. McK. Twombley, F. Pullman and Mayflower were seen in fair numbers, also a few of Philadelphia and Gretchen Buettner. One vase of a new white seedling, Western King, was entered by Nathan Smith & Son, Adrian, Michigan, in competition for the Shaw medal for "a plant of decided merit for cultivation, not previously an article of North American commerce." A plant is called for this medal, so that it was not awarded to these cut blooms. As seen here, Mrs. Eagan appears to keep better than either Mayflower or Florence Pullman.

Golden Wedding is decidedly the leading late yellow Chrysanthemum in St. Louis, Eugene Dailledouze being the favorite early variety. There was, however, a very good showing of flowers of Eugene Dailledouze, and, perhaps, more of the flowers of Major Bonnaffon, but the latter were somewhat smaller than heretofore. A few of the variety, H. G. Sunderbruch, appeared among the cut flowers, and I saw one bloom of Pitcher & Manda, while no flowers of Challenge were noticed in the hall. W. E. Guy, Belleville, Illinois, took first premium for best twelve blooms of Niveum, white. Florence Pullman gained the blue ribbon for best twelve of any one variety. The Michel Plant and Bulb Company, St. Louis, took first premium for best twelve flowers of Golden Wedding, and E. G. Hill for best twenty-four yellow flowers in three varieties, with Golden Wedding, Eugene Dailledouze and Modesta. Viviand Morel was again the only pink in point of numbers, but a dozen enormous blooms of Indiana won the first Shaw prize for best twelve of any variety introduced in 1894, 1895 or 1896, for E. G. Hill, Richmond, Indiana, who also took first premium for best twenty-four pink in three varieties with flowers of Viviand Morel, Murdock and Mrs. Perrin, as well as for an interesting collection of twenty-four assorted flowers, no two alike and all labeled.

As no premiums are offered for seedlings at this show, interest in Chrysanthemums centres in the entries for the Bent prize for "best vase of fifty, quality and arrangement to be equally considered." There were five entries, the two taking first and second premiums being composed of white and yellow flowers. First premium was won by William Schray, St. Louis, with a handsome arrangement of flowers of unequal merit, of Queen, Niveum, Golden Wedding, Eugene Dailledouze and three or four blooms of Philadelphia. The last were not an improvement, but marred the purity of coloring which, without them, was clean and clear. A vase of assorted flowers from W. J. & M. S. Vesey, Fort Wayne, Indiana, that took first premium in its section, contained the only specimens of Violescent seen at the show, no entries being made for the two premiums offered for the best twelve of that variety.

Some excellent Roses were shown. Ellison & Tesson, Mr. Fillmore and Mr. Trillow, all of St. Louis, won first premiums. Only single Violets were shown, mostly California. In Carnations, Alaska won in the white section, with Lizzie McGowan barred; Albertina was first among pink sorts, with William Scott barred, while Corsair stood first among red kinds. On the closing day Vesey Brothers, of Fort Wayne, Indiana, exhibited a fine vase of the variety Uncle John, in competition for a special premium offered by the Planters' Hotel. Several seedling Carnations were shown by the same firm, none of them named as yet. A red one, lighter in shade than Portia, seems decidedly promising. It is of medium fragrance, full, pleasing in color, and has, what most red Carnations lack, a good strong calyx. An attractive display of cut Orchids made by Eugene Wurst, gardener to Dr. S. Brown, Brownhurst, Missouri, comprised nearly sixty kinds; among twenty-six varieties of Cypripediums was C. Leeanum Masarcleanum, the best of the many hybrids between Insigne and Spicerianum. This is the first time the Brownhurst collection has been directly represented at any show.

Brighton, Ill. *F. C. S.*

Recent Publications.

Die nordamerikanische Holzarten und ihre Gegner. Von John Booth, Berlin, 1896.

In this vigorously written brochure the author renews his well-known advocacy of the naturalization of North American trees in Europe. He laments the fact that, notwithstanding the importance of experimenting with their culture was pointed out by Wangenheim and others more than a century ago, and though the existence of noble specimens introduced by them and scattered over Europe bears witness to their adaptability to climatic conditions there, no real effect on the science of forestry in the Old World has yet resulted therefrom. He attributes this largely to the bureaucratic opposition that all efforts in this direction have met with in such countries as Germany, where prejudice and, as he believes, downright ignorance are frequently conspicuous in forestry management. This opposition has lately found expression in an article by Oberforstmeister Weise in the *Mündener Heften*, 1894, which serves our author as ground for a general review of the matter. In his criticism of Herr Weise's position he displays a knowledge of the subject and its literature that attracts attention, though his enthusiasm sometimes leads him to unnecessary severity. But he pleads his case with ability, and his enthusiasm seems often warranted. The relegation of many of the most valuable trees of the United States to the service of mere park ornamentation in Europe, when they have stood the test of soil and climate for a century, is, in his view, a serious mistake, and has resulted in a real loss to Germany, where the natural poverty of the forest elements might be relieved by the use of much valuable material from North America.

Notes.

Sixteen car-loads of grapes from California were sold here last week, the varieties being Flame Tokay, Cornichon and Verdell. Tangerine and Mandarin oranges, from Florida, are occasionally seen, and, more abundantly, grape-fruit of good quality, from that state and from Jamaica.

Vegetables Under Glass is the title of a little pamphlet just issued by Henry A. Dreer, Philadelphia, giving the essential directions for vegetable gardening in winter, and explaining how to make the most of hot-beds, cold frames and forcing-houses in order to raise all the ordinary garden crops for home use or for market. The book is clearly written and well illustrated by reproductions of photographs. It contains something like ninety pages, and costs only twenty-five cents.

Akebia quinata is one of those climbers which holds its foliage fresh and green long after freezing weather has set in, so that wherever a screen is needed it is one of the very best of plants to use. Its beautiful five-pointed leaves persist nearly all winter in sheltered places, so that it is practically an evergreen in such situations. The foliage starts early in spring, and the oddly shaped chocolate-colored flowers are very interesting. In short, few climbers have a greater number of good qualities.

Mr. Eckford, who has produced so many interesting varieties of Sweet Peas, is offering his novelties for the season of 1897 at twenty-five cents a packet, instead of sixty cents for a packet of twenty seeds. Many enthusiasts in the cultivation of Sweet Peas have been disappointed at the weakness of some of these high-bred seedlings and at their lack of distinctness when compared with other varieties, and a decreased demand may be one reason for the reduction; but, no doubt, another reason is that California has such a favorable climate for growing Sweet Peas that a large stock of any novelty can be quickly worked up on our Pacific coast.

The last number of *The Gardeners' Chronicle* which has reached us gives a portrait of the inflorescence of Camoensia maxima, the noble tropical climber which Mr. Watson reports in his London letter in another column of this journal, as flowering simultaneously at Kew and in two private gardens in England. The large milk-white petals with their frilled edges of gold are of thin texture and therefore quite fugacious, and the ornamental rim soon turns to a dingy brown. Of course, the flower has less value in the gardener's eyes on account of these circumstances, but as they appear abundantly in clusters and open in succession, a large plant in bloom is a striking object and justifies the eulogium which Welwitsch bestowed upon it as he saw it growing in Angola.

Roman Hyacinths and the Paper-white Narcissus are just beginning to appear in the decorations of the florists' windows, which have been unusually beautiful during the Chrysanthemum season now passing away. Of course, there will be Chrysanthemums in the market until the holidays, but it is evident from the appearance of the flowers that a great majority of them have passed their prime, and they have lost the crisp look they wore a week ago. The season has been perceptibly shortened by the high temperature and bright sunshine which prevailed during the early part of November. Of the varieties used for show purposes in the windows, Maud Dean has been the favorite, while the new Rose, Souvenir du President Carnot, is also used in almost every shop in the fashionable quarter of the city, primarily because it is new, perhaps, but it seems to be considered by the florists a variety of much promise. A western correspondent writes us, however, that this Rose, as shown at the St. Louis exhibition, was not very favorably received. It was criticised for a lack of decision in color and of fullness in flower.

Writing of the autumn colors of certain plants, Mr. Joseph Meehan says that Vitis Coignetiæ, which turns to such rich autumnal colors in its Japanese home, and which in some parts of the country has lived up to its reputation, has failed altogether to show any beauty in its foliage at Germantown. The leaves behave exactly like our own fruiting Grapes—that is, they turn brown and fall to the ground. Mr. Meehan also has a good word to say of our somewhat neglected Rhus (aromatica) Canadensis, which is so useful where a low growth is needed. It changes to beautiful colors in mid-November after the leaves have fallen from all our other Sumachs. The Asiatic Rhus semialata Osbecki does not color at all in Germantown, although its autumn foliage is said to be beautiful in Japan. We may add that in this vicinity its leaves turn brown, or, rather, shrivel up, and fall so early that one suspects that they are preyed upon by some fungous disease. Its large, cream-colored flower-clusters, which appear very late in the season, give it some value at that particular time, but there are many more desirable trees.

Considering the large importations of Jamaica oranges which have been selling slowly and at a loss almost all of the season, the untimely haste of California orange growers in shipping their fruit east seems unwise. The idea of the California growers appears to be that the loss of the Florida crop has made a scarcity which has not been supplied. There has been intense rivalry in the orange-growing sections of California in the matter of making the earliest shipment, and the first car-load was forwarded from the foot-hills near Glendora, in the southern part of the state, on November 8th, and from Porterville two days later, with shipments to follow daily. Recent rains and cool nights are said to be favoring the ripening and coloring of the fruit, but there can be little doubt that these oranges are not matured and properly ripened and that the fruit is thus at a disadvantage. Florida oranges are now regularly in trade here, consignments of several hundred boxes having been received during the past few weeks, besides a car lot. The crop of that state is estimated at 125,000 boxes. From Jamaica 127,784 barrels have already reached this port, besides Mexican oranges, the first car-load of which was sold here last week. New Messina and Valencia oranges are already on the way to this country, these shipments marking the opening of the season for Mediterranean oranges.

The displays of vegetables for the Thanksgiving season, while not unusual in any respect, are not only varied and beautiful, but instructive, as showing the resources of the country at this season, for almost all the offerings are from the United States. Hot-house tomatoes, from Pennsylvania and Massachusetts, sell for thirty-five cents a pound, and these are now supplemented by the field-grown product from Key West, which brings twenty cents a pound. Selected Florida cucumbers sell readily for five cents each, and perfectly grown ones from hot-houses near Boston, where the cultivation of this vegetable is a specialty, cost ten cents. Eggplants, from the south, are less plentiful than they have been, but can be had for fifteen and twenty cents apiece. Cauliflower, owing to the open season, is abundant and excellent in quality, and ranges from ten to twenty-five cents each, according to size. Celery, from near-by points, western New York and Michigan, is within easy reach of buyers, costing forty cents to $1.00 for a dozen stalks. String-beans, from South Carolina, Georgia and Florida, vary largely in quality, and consequently in price; bright fresh wax-beans, carried by express, bring fifteen and twenty cents a quart. Peas have advanced in price on account of recent frosts, some shipments from Virginia having been badly frozen. The best cost seventy-five cents a half-peck. Pumpkins prove perishable in the dealers' hands, and are kept with difficulty beyond this time of year. Those now in stock cost twenty to forty cents each. Hubbard and Boston Marrow squashes, from this locality, cost ten to twenty cents each, and white summer squashes, from Florida, ten to fifteen cents. Other staple vegetables, cheap and plentiful, are parsnips and carrots, which cost twenty cents a dozen, and oyster-plant, ten cents a dozen. Potatoes are in large supply, but the quality is said to be under the average, much of the stock being rough and coarse. Choice smooth varieties, in sound condition, bring thirty-five cents a peck. Sweet potatoes, from Virginia and New Jersey, sell for twenty-five cents a half-peck. Red and white onions cost seven to ten cents a quart, and the large sweet Spanish onions, sixty cents a dozen. Jerusalem artichokes find slow sales at fifteen cents a quart. The true and more highly appreciated artichokes now coming from France maintain the uniform price of twenty-five cents apiece. A vegetable offered now by some of the best greengrocers, and a comparative rarity here, is the cardoon, the stalks of Cynara Cardunculus, originally from southern Europe. While not largely cultivated in England or America, this vegetable is highly esteemed on the continent of Europe as a wholesome esculent; the blanched stalks and inner leaves are prepared as asparagus is, or used for salads and in soups. The tall plants cost seventy-five cents each. Okra, from Louisiana and Florida, may be had for fifty cents a hundred, and peppers, from the south, at forty cents a dozen. Turnips, white and yellow, cost twenty cents a half-peck; domestic Brussels sprouts, fifteen to twenty cents a quart, and those from France, twenty-five cents a pound; beets, five cents a bunch, and cabbage, ten cents a head. Radishes, parsley, chervil, chives, mint, watercress, horse-radish, escarolle, corn salad, lettuce, spinach, kale and curled endive, sold as chicory, are included among greens and condiments in season now. Cranberries cost fifteen cents a quart.